

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-13. (canceled)

Claim 14 (currently amended): A thin-core or coreless integrated circuit printed circuit board (IC-PCB) carrier package having one of a thin core or ~~and~~ coreless substrate, and a stiffener to provide stiffening support to the one of a thin-core and coreless substrate, and wherein the substrate includes at least five layers, none of the layers having a thickness of greater than about 0.5 mm.

Claim 15 (currently amended): A thin-core or coreless IC-PCB carrier package as claimed in claim 14, the IC-PCB carrier package being one of a flip chip pin grid array (FC-PGA) or ~~and~~ a flip chip ball grid array (FC-BGA).

Claim 16 (currently amended): A thin-core or coreless IC-PCT carrier package as claimed in claim 14, where the stiffener is substantially made of ~~at least one of a metal, plastic, glass and~~ a ceramic material, is one of a molded, stamped, etched, extruded or ~~and~~ deposited stiffener, and is capable of withstanding high temperatures of at least one of an IC die bonding operation and normal IC operation.

Claim 17 (previously presented): A thin-core or coreless IC-PCT carrier package as claimed in claim 14, the stiffener being planar and mounted to a die-side major planar surface of the substrate.

Claim 18 (currently amended): A thin-core or coreless IC-PCT carrier package as claimed in claim 14, the stiffener having an internal window therein to provide clearance for at least one of a die, under-fill, die side components (DSC), or ~~and~~ integrated heat spreader (IHS).

Claim 19 (withdrawn): A thin-core or coreless IC-PCT carrier package as claimed in claim 14, the stiffener being a multi-part stiffener.

Claim 20 (currently amended): A thin-core or coreless IC-PCT carrier package as claimed in claim 14, the stiffener having an above-substrate-plane height, which is less-than or equal to an above-substrate-plane height, when mounted, of one of: an IC-die, or ~~and~~ a combination of an IC-die with an integrated heat spreader (IHS).

Claim 21 (currently amended): A thin-core or coreless IC-PCT carrier package as claimed in claim 14, the stiffener having a top surface above a substrate-plane, which is substantially co-planar with, when mounted, a top surface of ~~one of: an IC-die, and~~ a combination of an IC-die with an integrated heat spreader.

Claim 22 (currently amended): A thin-core or coreless IC-PCT carrier package as claimed in claim 21, the stiffener being disposable to co-support a heat sink, with ~~one of~~ an IC die, and a combination of an IC-die with an integrated heat spreader (IHS).

Claim 23 (currently amended): A thin-core or coreless IC-PCT carrier package as claimed in claim 14, where ~~[[if]]~~ a main body of the stiffener is electrically conductive, the stiffener further includes an insulator to electrically insulate electrical members on stiffener-opposing areas of the substrate.

Claim 24 (withdrawn): A thin-core or coreless IC-PCT carrier package as claimed in claim 14, the stiffener being an edge stiffener mounted to minor-planar side-surfaces of the substrate.

Claim 25 (withdrawn): A thin-core or coreless IC-PCT carrier package as claimed in claim 14, the edge stiffener having a non-flat cross section which is mated with the side-surfaces of the substrate.

Claim 26 (withdrawn): A thin-core or coreless IC-PCT carrier package as claimed in claim 14, where the edge stiffener is pre-attached to the substrate by an IC-PCB carrier package manufacturer.

Claim 27 (currently amended): A packaged integrated circuit (IC) comprising:

an IC, and a thin-core or coreless integrated circuit printed circuit board (IC-PCB) carrier package having one of a thin-core or and coreless substrate, and a stiffener to provide stiffening support to the one of a thin-core and coreless substrate, and wherein the substrate includes at least five layers.

Claim 28 (currently amended): A packaged IC as claimed in claim 27, the IC-PCB carrier package being one of a flip chip pin grid array (FC-PGA) or and a flip chip ball grid array (FC-BGA) carrier package.

Claim 29 (previously presented): A packaged IC as claimed in claim 27, where the stiffener is substantially made of a thermosetting plastic material. ~~at least one of a metal, plastic, glass and ceramic material, is one of a molded, stamped, etched, extruded and deposited stiffener, and is capable of withstanding high temperatures of at least one of an IC die bonding operation and normal IC operation.~~

Claim 30 (original): A packaged IC as claimed in claim 27, the stiffener being planar and mounted to a die-side major planar surface of the substrate.

Claim 31 (currently amended): A packaged IC as claimed in claim 27, the stiffener having an internal window therein to provide clearance for at least one of a die, under-fill, die side components (DSC), or and integrated heat spreader (IHS).

Claim 32 (withdrawn): A packaged IC as claimed in claim 27, the stiffener being a multi-part stiffener.

Claim 33 (currently amended): A packaged IC as claimed in claim 27, the stiffener having an above-substrate-plane height, which is less-than or equal to an above-substrate-plane height, when mounted, of one of: an IC-die, or ~~and~~ a combination of an IC-die with an integrated heat spreader (IHS).

Claim 34 (currently amended): A packaged IC as claimed in claim 27, the stiffener having a top surface above a substrate-plane, which is substantially co-planar with, when mounted, a top surface of ~~one of: an IC-die, and~~ a combination of an IC-die with an integrated heat spreader.

Claim 35 (currently amended): A packaged IC as claimed in claim 34, the stiffener being disposable to co-support a heat sink, with ~~one of: an IC-die, and~~ a combination of an IC-die with an integrated heat spreader (IHS).

Claim 36 (currently amended): A packaged IC as claimed in claim 27, where ~~[[if]]~~ a main body of the stiffener is electrically conductive, the stiffener further includes an insulator to electrically insulate electrical members on stiffener-opposing areas of the substrate.

Claim 37 (withdrawn): A packaged IC as claimed in claim 27, the stiffener being an edge stiffener mounted to minor-planar side-surfaces of the substrate.

Claim 38 (withdrawn): A packaged IC as claimed in claim 27, the edge stiffener having a non-flat cross section which is mated with the side-surfaces of the substrate.

Claim 39 (withdrawn): A packaged IC as claimed in claim 27, where the edge stiffener is pre-attached to the substrate by an IC-PCT carrier package manufacturer.

Claims 40-45. (canceled)

Claim 46 (currently amended): A ~~thin-core or~~ coreless integrated circuit printed circuit board (IC-PCB) carrier package having ~~one of a thin-core and~~ coreless substrate, wherein the substrate includes at least five layers, none of the layers of the substrate having a thickness greater than about 30 microns, and a stiffener secured onto the at least one of a ~~thin-core and~~ coreless substrate of the integrated circuit printed circuit board (IC-PCB) carrier package to provide stiffening support thereto.

Claim 47 (currently amended): A ~~thin-core or~~ coreless IC-PCB carrier package as claimed in claim 46, the IC-PCB carrier package being one of a flip chip pin grid array (FC-PGA) or ~~and~~ a flip chip ball grid array (FC-BGA) carrier package.

Claim 48 (currently amended): A ~~thin-core or~~ coreless IC-PCB carrier package as claimed in claim 46, where the stiffener is substantially made of at least one of a metal, plastic, glass or ~~and~~ ceramic material, is ~~one of~~ a molded, stamped, etched, extruded and deposited stiffener, and is capable of withstanding high temperatures of at least one of an IC die bonding operation and normal IC operation.

Claim 49 (currently amended): A ~~thin-core or~~ coreless IC-PCB carrier package as claimed in claim 46, the stiffener being planar for mounting to a die-side major planar surface of the substrate.

Claim 50 (withdrawn): A thin-core or coreless IC-PCB carrier package as claimed in claim 46, the stiffener being a multi-part stiffener.

Claim 51 (currently amended): A ~~thin-core or~~ coreless IC-PCB carrier package as claimed in claim 46, the stiffener being disposable to co-support a heat sink, with ~~one of:~~ an IC die, and a combination of an IC-die with an integrated heat spreader (IHS).

Claim 52 (currently amended): An electronic system comprising:
a packaged integrated circuit (IC) having an IC, and a thin-core ~~or coreless~~
integrated circuit printed circuit board (IC-PCB) carrier package having ~~one~~
of a thin-core and ~~coreless~~ substrate, wherein the substrate includes a thin
core with a thickness between about 0.1 mm and 0.5 mm and at least four
laminate layers, at least two of the laminate layers on a first side of the thin

core and at least two of the laminate layers on a second side of the thin core, none of the laminate layers having a thickness greater than about 30 microns, and a stiffener to provide stiffening support to the ~~one of a thin-core and coreless~~ substrate;

a receiving socket to receive the packaged IC; and

at least one input/output device.

Claim 53 (previously presented): An electronic system as claimed in claim 52, the IC-PCB carrier package being one of a flip chip pin grid array (FC-PGA) and a flip chip ball grid array (FC-BGA) carrier package.

Claim 54 (currently amended): An electronic system as claimed in claim 52, where the stiffener is substantially made of at least one of a metal, plastic, glass or ~~and~~ ceramic material, is ~~one of a molded, stamped, etched, an~~ extruded ~~and deposited~~ stiffener, and is capable of withstanding high temperatures of at least one of an IC die bonding operation and normal IC operation.

Claim 55 (previously presented): An electronic system as claimed in claim 52, the stiffener being planar and mounted to a die-side major planar surface of the substrate.

Claim 56 (currently amended): An electronic system as claimed in claim 52, the stiffener having an internal window therein to provide clearance for at least one of a die, under-fill, die side components (DSC), or ~~and~~ integrated heat spreader (IHS).

Claim 57 (withdrawn): An electronic system as claimed in claim 52, the stiffener being a multi-part stiffener.

Claim 58 (currently amended): An electronic system as claimed in claim 52, the stiffener having an above-substrate-plane height, which is less-than or equal to an above-substrate-plane height, when mounted, of one of: an IC-die, or ~~and~~ a combination of an IC-die with an integrated heat spreader (IHS).

Claim 59 (currently amended): An electronic system as claimed in claim 52, the stiffener having a top surface above a substrate-plane, which is substantially co-planar with, when mounted, a top surface of ~~one of: an IC-die, and~~ a combination of an IC-die with an integrated heat spreader.

Claim 60 (currently amended): An electronic system as claimed in claim 59, the stiffener being disposable to co-support a heat sink, with ~~one of: an IC-die, and~~ a combination of an IC-die with an integrated heat spreader (IHS).

Claim 61 (currently amended): An electronic system as claimed in claim 52, where ~~[[if]]~~ a main body of the stiffener is electrically conductive, the stiffener further includes an insulator to electrically insulate electrical members on stiffener-opposing areas of the substrate.

Claim 62 (withdrawn): An electronic system as claimed in claim 52, the stiffener being an edge stiffener mounted to minor-planar side-surfaces of the substrate.

Claim 63 (withdrawn): An electronic system as claimed in claim 52, the edge stiffener having a non-flat cross section which is mated with the side-surfaces of the substrate.

Claim 64 (withdrawn): An electronic system as claimed in claim 52, where the edge stiffener is pre-attached to the substrate by an IC-PCT carrier package manufacturer.